

# Hardware Setup

If your mainboard has already been installed in your computer you may still need to refer to this chapter if you plan to upgrade your system's hardware.



**Be sure to disconnect the power cable from the power source before performing any work on your mainboard, i. e. installing a CPU, memory module, changing a jumper setting, etc. Not doing so may result in electrical shock!**

## 2-1 Introduction to Jumpers

Jumpers are used to select between various operating modes. A jumper consists of a row of gold colored pins that protrude from the surface of the mainboard. It is important not to confuse jumpers with connectors or headers.



**Putting jumper caps on anything that is not a jumper may result in damaging your mainboard. Please refer to Section 1-3, Mainboard Layout, for the location of jumpers on your mainboard.**

As indicated in Figure 2-1 below, a cap is used to cover the pins of a jumper, resulting in shorting those pins that it covers. If the cap is removed from the top of the pins, the jumper is left "open." The number 1 shown both in the diagram below and in all multiple pin jumper and header diagrams in this manual indicates the pin designated with the number 1. The numbering of the remaining pins follows in sequence.

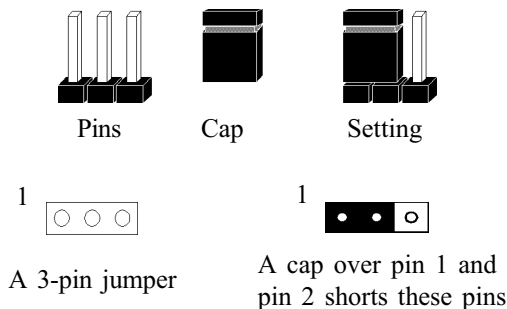


Figure 2-1

## 2-2 Installing an Intel Processor in Slot 1

1. Insert the Pentium II/III or Celeron processor into the retention mechanism. Press evenly and gently until the snaps on the upper side of the processor have been inserted into the holes at the top of the retention mechanism.
2. Note that when removing the processor, these snaps should be clicked into a completely vertical position, leaving your hands free to stabilize the board. Pull the processor evenly and gently out of the retention mechanism.
3. Also note that like PCI and ISA slots, Slot 1 has a divider that prevents backwards insertion of the CPU.



Installing a heat sink with cooling fan is necessary for proper heat dissipation from your CPU. Failing to install these items may result in overheating and possible burn-out of your CPU.

## 2-3 Setting Your CPU's Parameters(*SeePU* Technology)

*SeePU* is a new user friendly technology that enables the user to setup a mainboard's CPU parameters through an easy to use BIOS setup procedure. It is no longer necessary to make many jumper settings as on conventional mainboards.

1. After installing all your hardware into your PC system, turn on your system's power. Enter the CMOS Setup Utility by pressing the Delete key when your BIOS identification screen appears.
2. Move the cursor to *SeePU* Setup menu and press Enter. Find the CPU Host/PCI Clock option. Commands for operating the cursor in BIOS are found at the Bottom of the BIOS screen (Figure 2-2).
3. Use the CPU Host/PCI Clock option to select your CPU's parameters. Set the clock ratio (also known as external clock multiplier factor) according to your processor's specifications (See Figure 2-3).



External clock frequency (JP1) must be selected according to you processor. Failing to set these jumpers may resulted in system not booting. (See Section 2-4)



You do not need to make voltage settings because *SeePU* automatically sets your CPU voltage.

4. Press Esc to return to the CMOS Setup Utility, press F10 to Save and Exit Setup and choose 'Y' to confirm. The system will automatically reboot and during startup you will see the correct CPU type shown on the screen.

| CPU Type                                                     | CPU Speed      |                 |                |
|--------------------------------------------------------------|----------------|-----------------|----------------|
|                                                              | External Clock | Frequency Ratio | Internal Clock |
| Intel Slot1<br>Pentium III/ III<br>&<br>Celeron<br>processor | 100            | 4.5             | 450            |
|                                                              |                | 5               | 500            |
|                                                              |                | 5.5             | 550            |
|                                                              |                | 6               | 600            |
|                                                              |                | 6.5             | 650            |
|                                                              |                | 7               | 700            |
|                                                              | 133(810E)      | 5               | 667            |
|                                                              |                | 5.5             | 733            |

Figure 2-2

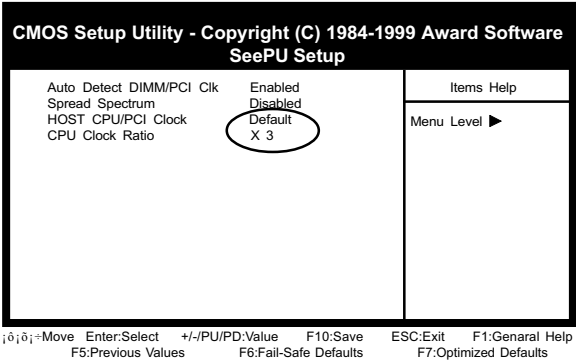


Figure 2-3

## **Overclocking**

Operating a CPU at a higher frequency than it's specification allows is called overclocking. If the CPU frequency is set at a higher frequency than it's specification allows, it may or may not run at that frequency, depending on the quality of your CPU and the extent to which the frequency has been overset. The mainboard manufacturer highly discourages overclocking as it may result in data loss, CPU burn-out, system failure, etc.

Many Intel processors are frequency locked processors and are not able to perform overclocking. Regardless of whether the processor is a frequency locked, overclocking may cause some processors to hang when turning on the system. When the processor hangs, the screen remains blank and the system does not boot. To solve this problem, do the following.

1. Turn off the computer and then press the Home key on your keyboard
2. Turn on your computer, wait for five seconds and then release the Home key.  
(Pressing the Home key allows the computer to boot at a low system speed. For example, for 66MHz external clock CPUs, the CPU boot-up speed is 233MHz. For 100MHz external clock CPUs, the CPU boot-up speed is 350MHz.)
3. Enter BIOS and reconfigure your CPU parameters as described in this section.

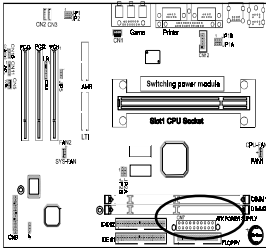
## 2-4 Connector and Jumper Settings

Connectors are used to link the system board with other parts of the system, including the power supply, the keyboard, and the various controllers on the front panel of the system case.



**The power supply connector is the last connection to be made while installing a mainboard. Before connecting the power supply, please make sure it is not connected to the power source.**

### ATX Power Supply Connector



This mainboard requires a power supply of at least 200 watts. The power cord leading from the system's power supply to the external power source must be the very last part connected when assembling a system.



To support this function, a switching power supply with a minimum of **750mA 5VSB** is required.

|        |    |    |        |
|--------|----|----|--------|
| 12V    | 10 | 20 | 5V     |
| 5VSB   | 9  | 16 | 5V     |
| PW-OK  | 6  | 15 | -5V    |
| Ground | 7  | 17 | Ground |
| 5V     | 8  | 18 | Ground |
| Ground | 5  | 19 | Ground |
| 5V     | 4  | 14 | PS-ON  |
| Ground | 3  | 13 | Ground |
| 3.3V   | 2  | 12 | -12V   |
| 3.3V   | 1  | 11 | 3.3V   |

The ATX power supply provides a single 20-pin connector interface which incorporates standard +/-5V, +/-12V, optional 3.3V and Soft-power signals. The Soft-power signal, a 5V trickle supply is continuously supplied when AC power is available. When the system is in the Soft-Off mode, this trickle supply maintains the system in it's minimum power state.

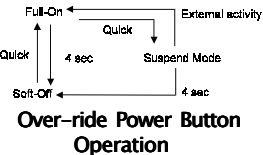
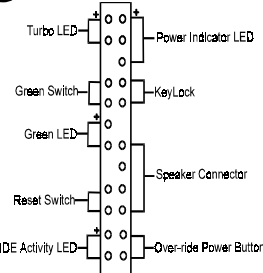
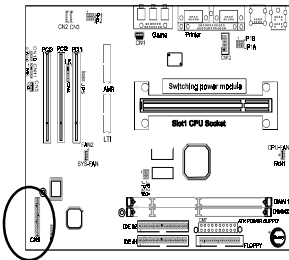
### Software Power-Off Control

This mainboard can be powered down using the Windows 95/98 Software Power-Off function. To power down your computer, click the START button on the Windows 95 task bar. Select "Shut Down The Computer" and the system turns off. The message "It is now safe to turn off your computer" will not be shown when using this function.

### Power-On By Modem

While in Soft-off state, if an external modem ring-up signal occurs, the system wakes up and can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu.

Front Panel Connector Set (CN9) A through E



A. Over-ride Power Button Connector

The power button on the ATX chassis can be used as a normal power switch as well as a device to activate Advanced Power Management Suspend mode. This mode is used for saving electricity when the computer is not in use for long periods of time. The Soft-OFF by PWR-BTTN function in BIOS's Power Management Setup menu must be set to "Delay 4 Sec." to activate this function.

When the Soft-OFF by PWR-BTTN function is enabled, pushing the power button rapidly will switch the system to Suspend mode. Any occurrence of external activities such as pressing a key on the keyboard or moving the mouse will bring the system back to Full-On. Pushing the button while in Full-On mode for more than 4 seconds will switch the system completely off. See Over-ride Power Button Operation diagram.

B. Keyboard Lock & Power Indicator LED Connector

Plugging this connector into the lock on the front panel of the system case allows the lock to enable or disable the keyboard. This function provides limited security against casual intruders. The power indicator LED shows the system's power status. It is important to pay attention to the correct cables and pin orientation (i.e., not to reverse the order of these two connectors.)

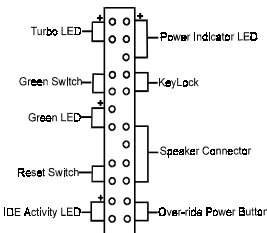
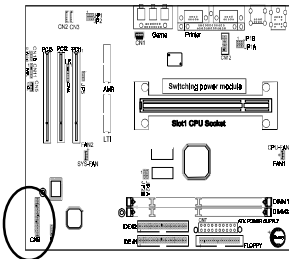
| Pin                 |   | Definition |
|---------------------|---|------------|
| Power indicator LED | 1 | +5V DC     |
|                     | 2 | No Connect |
|                     | 3 | Ground     |
| Keyboard Lock       | 4 | Keylock    |
|                     | 5 | Ground     |

Blinking LED in Suspend Mode

While in Suspend mode, the LED light on the front panel of your computer will flash. Suspend mode is entered by pressing the Override Power Button, pushing the Green button on your ATX case, or enabling the Power Management and Suspend Mode options in BIOS's Power Management menu.

C. Green Switch/Green LED Connector

Some ATX cases provide a Green switch which is used to put the system in Suspend mode. In Suspend mode, the power supply to the system is reduced to a trickle, the CPU clock is stopped, and the CPU core is in it's minimum power state. The system is woken up whenever the keyboard or mouse is touched. The system resumes in different ways as defined by Power Management Setup screen in BIOS.



D. System Reset Switch Connector

This connector should be connected to the reset switch on the front panel of the system case. The reset switch allows you to restart the system without turning the power off.

| Pin | Definition |
|-----|------------|
| 1   | System     |
| 2   | GND        |

E. Speaker Connector

| PIN | Definition     |
|-----|----------------|
| 1   | Speaker Signal |
| 2   | NC             |
| 3   | NC             |
| 4   | +5V DC         |

F. IDE Activity LED Connector

The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

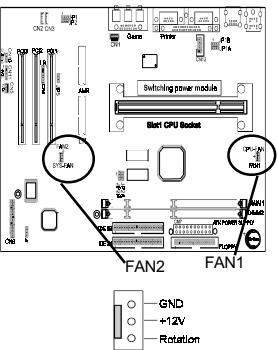
G. Turbo LED Connector

The turbo indicator LED lights up whenever the system went on suspend mode.

Suspend to RAM (STR)

The Suspend to RAM (STR) also known as S3 sleeping state feature allow the system to go into a low wake-up latency sleeping state where all system context is lost except system memory. CPU, cache and chip set context are lost in this state; the OS and drivers must restore all device context. Hardware must maintain memory context and restore some CPU and L2 configuration context

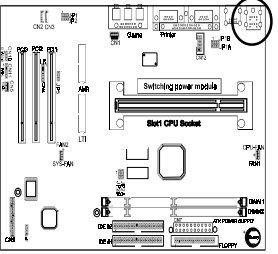
CPU/System Cooling Fan Connectors (FAN1/FAN2)



These added connectors allow the fan to draw their power from the mainboard instead of the disk drive connector.

The board's management extension hardware is able to detect the CPU and system fan speed in rpm (revolutions per minute). These connectors supports 3-pin cooling fans with minimum of 3500 RPM. The wiring and plug may vary depending on the manufacturer. On standard fans, the red is positive (+12V), the black is ground, and the yellow wire is the rotation signal.

PS/2 Mouse and Keyboard Ports



If a PS/2 mouse is used, BIOS will automatically detect and assign IRQ12 to the PS/2 mouse.



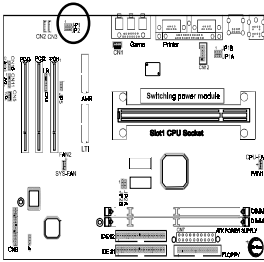
| Pin | Definition  |
|-----|-------------|
| 1   | Data        |
| 2   | No Connect  |
| 3   | Ground      |
| 4   | +5V (fused) |
| 5   | Clock       |
| 6   | No Connect  |

Poly-fuse Over Current Protection

The poly-fuse protects the system from dangerous voltages the system might be exposed to via the keyboard or USB connectors. In case of such exposure, the poly-fuse will immediately be disconnected from the circuit, just like a normal fuse. After being disconnected for a certain period of time, the poly-fuse will return to its normal state, after which the keyboard or USB can function properly again. Unlike conventional fuses, the poly-fuse does not have to be replaced, relieving the user wasted time and inconvenience.



## Audio Line out and Speaker out Jumpers(JP1/JP2)



JP1 1

JP2

Line out

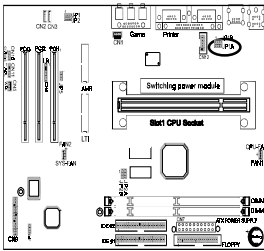
JP1 1

JP2

Speaker out

This jumper allows you to select between audio line-out or speaker out function. Set both JP1 and JP2 pins to 1-2 for line-out function or set both JP1 and JP2 pins to 2-3 for speaker out function..

## PS/2 Keyboard/Mouse Power On Function (JP1A)

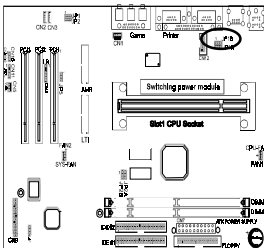


1 Enabled

1 Disabled

This board is able to be turned on by the PS/2 keyboard (hot key/Password) or a PS/2 mouse click. To use this function, select a device of your choice at the Power on Function option in BIOS's Integrated Peripherals screen (See section 3-4). You must also set this jumper's cap to pins 1-2 to use this function.

## USB Device Power On Function (JP1B)

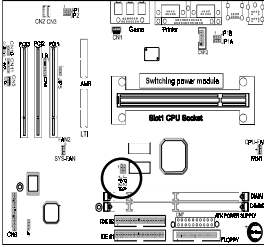



1 Enabled

1 Disabled

This board is able to be turned on by a USB keyboard (hot key/Password) or a USB mouse click. To use this function, select a enabled at the USB Keyboard support Function option in BIOS's Integrated Peripherals screen (See section 3-4). You must also set this jumper's cap to pins 2-3 to use this function.

## External Clock Frequency (JP2A/JP2B)

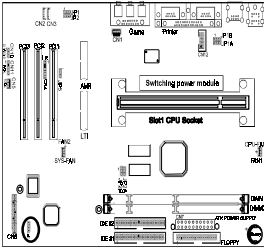



1  (Default)  
CPU


1   
100MHz

This jumper allows the external clock frequency to be determined either by the CPU or the user. If set to pins 1-2, the CPU determines the external clock speed. If set to pins 2-3, the external clock is always 100MHz.

## CMOS Setting (JP3)



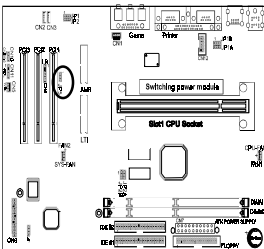
1  Normal (default)


1  Clear CMOS data


To clear the contents of the CMOS, please follow the steps below.

1. Disconnect the system power supply from the power source.
2. Set the jumper cap at location 2~3 for 5 seconds, then set it back to the default position.
3. Connect the system's power and then start the system.
4. Enter BIOS's CMOS Setup Utility and choose Load Setup Defaults. Type Y and press enter.
5. Set the system configuration in the Standard CMOS Setup menu.

## AMR/MR/AC'97 CODEC Jumper (JP5)

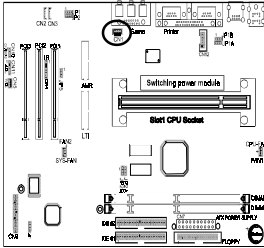


1  Soft-Modem riser only (default)  
(On board AC'97 CODEC enabled)

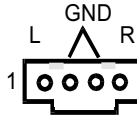
1  Soft-Audio/Modem riser only  
(On board AC'97 CODEC disabled)

Short pin 1-2 to enable Soft Modem riser only (Onboard AC'97 CODEC enabled). Short pin 2-3 to enable Soft Audio Modem riser (Onboard AC'97 CODEC disabled).

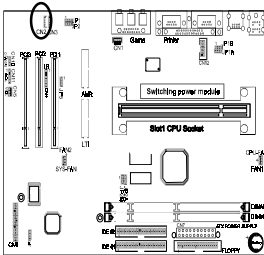
## CD-ROM Audio-in (CN1)



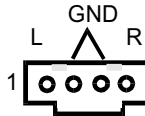
Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable your CD-ROM's audio function.



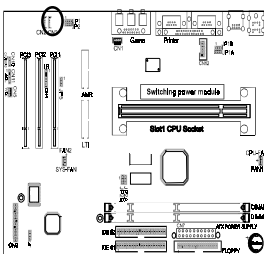
## Auxiliary CD-ROM Audio-in (CN2)



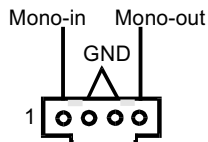
Use the auxiliary audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable your CD-ROM's audio function.



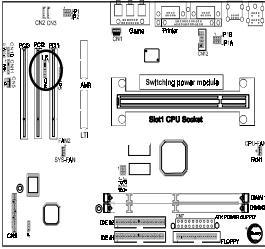
## Audio Mono -in/out (CN3)



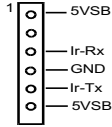
Use the mono audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable mono audio in/out function.



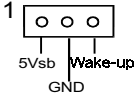
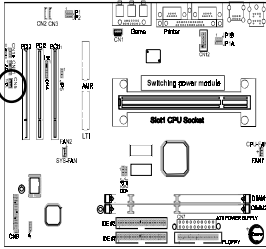
## Infrared Connector (CN4)



If you enable the IR Address Select in BIOS's Integrated Peripherals menu the IR port will support IR functions. (See section 3-4)



## WOL (Wake-on-LAN) Connector (CN5)

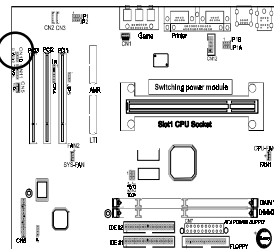


Enable the Wake Up On LAN selection in BIOS's Power Management Menu to use this function. The capability to remotely manage PCs on a network is a significant factor in reducing administrative and ownership costs. Magic Packet technology is designed to give WOL (Wake-on-LAN) capability to the LAN controller. When a PC capable of receiving wake up command goes to sleep, the Magic Packet mode in the LAN controller is enabled. When the LAN controller receives a Magic Packet frame, the LAN controller will wake up the PC. This header is used to connect an add-in NIC (Network Interface Card) which gives WOL capability to the mainboard.



To support this function, a switching power supply with a minimum of **750mA 5VSB** is required.

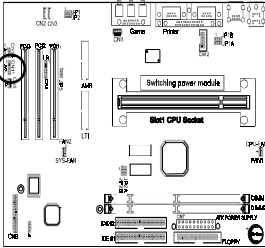
## Chassis Intrusion Detection (CN10)



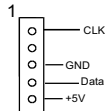
This board supports the chassis instruction detection feature of the management extension hardware by means of a mechanical or photo sensor switch attached to the motherboard through this 1x3-pin chassis security header. The mechanical switch is set to open for normal computer operation.



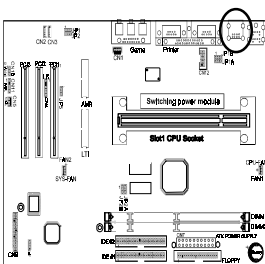
## Alert On LAN Connector (CN11)



Alert On LAN enabled LAN controller to report messages to a network management console without the aid of the system processor. This is crucial in cases where the processor is malfunctioning or cannot function due to being in a low power state. In order to use this function, the connector must be connected to a LAN card that support AOL feature.



## USB(Universal Serial Bus) Ports



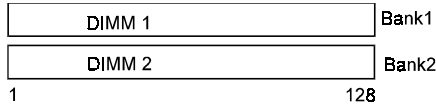
If you want to use a USB keyboard, you must enable the USB keyboard support function in BIOS's Integrated Peripherals menu . USB is an open industry standard, providing a simple and inexpensive way to connect up to 125 devices to a single computer port. Keyboards, mice, tablets, digitizers, scanners, bar-code readers, modems, printers and many more can all be used at the same time.

USB is a dynamically reconfigurable serial bus with an elementary data rate of 12Mbps. Based on off the shelf, low cost micro-controller technology, its modular layered software protocol supports sophisticated devices and application programs.

This board contains a USB Host controller and includes a root hub with two USB ports (meets USB Rev 1.0 spec.). Two USB peripherals or hub devices are able to be connected.

## 2-5 Main Memory Configuration

The DRAM memory system consists two banks and the memory size ranges from **16~256 MBytes**. If you only use one bank it does not matter which one you use and if you use two or more banks, it does not matter which bank you install first.



### *DRAM Specifications*

DIMM type: 3.3V, 64/72-bit Synchronous DRAM  
Module size: Single/double-sided 16/32/64/128 MBytes  
DRAM speed: 10/12ns for Synchronous DRAM  
Parity: Either parity or non-parity



The compatibility of 256MB DIMM is still under testing and cannot be guaranteed.



This mainboard supports 3.3v, unbuffered, 4-clock, SDRAM DIMM only. Buffered, 5V, or 2-clock SDRAM DIMMs should not be used.



Due to loading anomalies, using DIMM with an 'n x 4' DRAM base on this mainboard is not recommended. For example, a DIMM that uses sixteen 16Mb x 4 devices should not be used.

### **SPD (Serial Presence Detect)**

This is an EPROM that contains speed and design information about the memory module. The mainboard queries the module and makes adjustments to system operation based on what it finds.